

SEQUENCE LISTING

<110> Cahoon, Edgar B

<120> A Cytochrome P450 enzyme associated with the synthesis of Δ^{12} -epoxy fatty acids

<130> BB1465 US NA

<140>

<141>

<150> 60/219833

<151> July 21, 2000

<160> 7

<170> Microsoft Office 97

<210> 1

<211> 1733

<212> DNA

<213> Euphorbia lagascae

<400> 1

gcataaaagg aaaatggagc agaaaaatct ctctttccg agcattttaa taagtttct 60
gcttgttta atcttagtag tagtcatgag gttgtggaag aaacagaatc cacccagg 120
gccatggaaat tttcctatca taggtatct tcctcatttta ttactcaattt ctgatctagg 180
ccatgaacgt ttttagagcct tggctcaaattt ttatggacct gtatgagtc ttcaatttgg 240
ccaagttca gctgttgtca tttcttcagc tgaagcagcc aaagaggta tgaaaactca 300
ggctgatgcc ttgcggcaac gcoctatcgt ctggacgcagcagattgtgt tttataatcg 360
gaaagatgtc ttgtttgctt catatggaga tcactggagg cagatgaaga aaatttggat 420
acttgaattt ctgagtgc当地 aaaaagttca atcctccagg ttaatccagg aggaagaaat 480
ggaggatgcc atcacattcc tccgttcgaa agccgatct ccggtaataa ttacaaagat 540
catttatggc attataattt cgatcatgat aagaacatcc gtggtaattt gtaagaaaa 600
agaaagattt ctgagtgttgc ccgatcgttcaatggagca ggcacgagtt ttggcaccgc 660
agacgctttt ccgacgtgga aattacttca ctatatttccatggagctgatca caaaaccagg 720
gcgttgc当地 caggagattt acgatataact tgaagagattt ctaatggac acaaagccaa 780
taagcctttt gaagcggata acttaatggat tggcttattt aatcttcaaa aaaaatggaaa 840
cggttccagtg ccagtgc当地 acgaaagcat caaagcatcc gttttgc当地 tgtttactgc 900
cgggagc当地 acaacttc当地 aagctacaga atggtaatgc gcagagctgc tgaaaatcc 960
aactgaacta agaaaagcac aagaagaaatg tagacaagta ttgggtgaaa tggggaaaatg 1020
tgatgaatca agatttcatg atttggaaattt cttaagttt gttggtaaaatg aaactctaag 1080
attacatctt ccgttgc当地 tgattccgag ggagtgttga gaaacaacac gaatttgatgg 1140
atatgaaattt catccgaaaca ctc当地 atttgc当地 tgtaatgtt gggcgatca gaagagatcc 1200
taatacttgg tcggaaacctt gaaagtttccatggaaagg tttaaagattt gtgcaatttga 1260
ttataaagggg acgacatttgc当地 aactggatcc atttggatcc gggaaaagaa tatgttccgg 1320
cattacttca gcttatttca atttggatcc tgatcatttata aatcttattt atcattttaa 1380
ttggaaacttgc当地 gccgatggaa ttacacctca aacacttgc当地 atgactgaag ctattggcgg 1440
tgctctcagg aaaaaatag atcttaatgtt gatttcttattt ccatatcaag ttagctttagg 1500
ctcaaataattt tcttgatttac attagggatcc tggatataatataaact ttaatataacg 1560
atgttcttgc当地 atgggttggg tgatgttataa taggtttcc accgatcata taatgtgc当地 1620
tctttgttgg atgggtttaga ttataatggat tttgggttgg gatttttaga tgggttaat 1680
gatttggatg gataataataaatttgc当地 aatttgc当地 tttctttttt caaatccgaa aaa 1733

<210> 2

<211> 500

<212> PRT

<213> Euphorbia lagascae

<400> 2
Met Glu Gln Lys Asn Leu Ser Phe Pro Ser Ile Leu Ile Ser Phe Leu
1 5 10 15
Leu Val Leu Ile Leu Val Val Val Met Arg Leu Trp Lys Lys Gln Asn
20 25 30
Pro Pro Pro Gly Pro Trp Lys Phe Pro Ile Ile Gly Asn Leu Pro His
35 40 45
Leu Leu Leu Thr Ser Asp Leu Gly His Glu Arg Phe Arg Ala Leu Ala
50 55 60
Gln Ile Tyr Gly Pro Val Met Ser Leu Gln Ile Gly Gln Val Ser Ala
65 70 75 80
Val Val Ile Ser Ser Ala Glu Ala Ala Lys Glu Val Met Lys Thr Gln
85 90 95
Ala Asp Ala Phe Ala Gln Arg Pro Ile Val Leu Asp Ala Gln Ile Val
100 105 110
Phe Tyr Asn Arg Lys Asp Val Leu Phe Ala Ser Tyr Gly Asp His Trp
115 120 125
Arg Gln Met Lys Lys Ile Trp Ile Leu Glu Phe Leu Ser Ala Lys Lys
130 135 140
Val Gln Ser Ser Arg Leu Ile Arg Glu Glu Glu Met Glu Asp Ala Ile
145 150 155 160
Thr Phe Leu Arg Ser Lys Ala Gly Ser Pro Val Asn Ile Thr Lys Ile
165 170 175
Ile Tyr Gly Ile Ile Ser Ile Met Ile Arg Thr Ser Val Gly Asn
180 185 190
Cys Lys Gln Lys Glu Arg Leu Leu Ser Val Ala Asp Ala Val Asn Glu
195 200 205
Ala Ala Thr Ser Phe Gly Thr Ala Asp Ala Phe Pro Thr Trp Lys Leu
210 215 220
Leu His Tyr Ile Ile Gly Ala Glu Ser Lys Pro Arg Arg Leu His Gln
225 230 235 240
Glu Ile Asp Asp Ile Leu Glu Glu Ile Leu Asn Glu His Lys Ala Asn
245 250 255
Lys Pro Phe Glu Ala Asp Asn Leu Met Asp Val Leu Leu Asn Leu Gln
260 265 270
Lys Asn Gly Asn Val Pro Val Pro Val Thr Asn Glu Ser Ile Lys Ala
275 280 285
Ser Val Leu Gln Met Phe Thr Ala Gly Ser Glu Thr Thr Ser Lys Ala
290 295 300

Thr Glu Trp Val Met Ala Glu Leu Met Lys Asn Pro Thr Glu Leu Arg
305 310 315 320
Lys Ala Gln Glu Glu Val Arg Gln Val Phe Gly Glu Met Gly Lys Val
325 330 335
Asp Glu Ser Arg Phe His Asp Leu Lys Phe Phe Lys Leu Val Val Lys
340 345 350
Glu Thr Leu Arg Leu His Pro Pro Val Val Leu Ile Pro Arg Glu Cys
355 360 365
Arg Glu Thr Thr Arg Ile Asp Gly Tyr Glu Ile His Pro Asn Thr Arg
370 375 380
Ile Val Val Asn Ala Trp Ala Ile Gly Arg Asp Pro Asn Thr Trp Ser
385 390 395 400
Glu Pro Gly Lys Phe Asn Pro Glu Arg Phe Lys Asp Cys Ala Ile Asp
405 410 415
Tyr Lys Gly Thr Thr Phe Glu Leu Val Pro Phe Gly Ala Gly Lys Arg
420 425 430
Ile Cys Pro Gly Ile Thr Ser Ala Ile Thr Asn Leu Glu Tyr Val Ile
435 440 445
Ile Asn Leu Leu Tyr His Phe Asn Trp Glu Leu Ala Asp Gly Ile Thr
450 455 460
Pro Gln Thr Leu Asp Met Thr Glu Ala Ile Gly Gly Ala Leu Arg Lys
465 470 475 480
Lys Ile Asp Leu Lys Leu Ile Pro Ile Pro Tyr Gln Val Ser Leu Gly
485 490 495
Ser Asn Ile Ser
500

<210> 3
<211> 502
<212> PRT
<213> Capsicum annuum

<400> 3
Met Glu Ile Gln Phe Thr Asn Leu Val Ala Phe Leu Leu Phe Leu Ser
1 5 10 15
Ser Ile Ile Leu Leu Leu Lys Lys Trp Lys Thr Gln Lys Leu Asn Leu
20 25 30
Pro Pro Gly Pro Trp Lys Leu Pro Phe Ile Gly Ser Leu His His Leu
35 40 45
Ala Val Ala Gly Pro Leu Pro His His Gly Leu Lys Asn Leu Ala Lys
50 55 60
Leu Tyr Gly Pro Leu Met His Leu Arg Leu Gly Glu Ile Pro Thr Val
65 70 75 80

Ile Ile Ser Ser Pro Arg Met Ala Lys Glu Val Leu Lys Thr His Asp
85 90 95

Leu Ala Phe Ala Thr Arg Pro Lys Leu Val Val Ala Asp Ile Val His
100 105 110

Tyr Asp Ser Thr Asp Ile Ala Phe Ser Pro Tyr Gly Glu Tyr Trp Arg
115 120 125

Gln Ile Arg Lys Ile Cys Ile Leu Glu Leu Leu Ser Ala Lys Met Val
130 135 140

Lys Phe Phe Ser Ser Ile Arg Gln Asp Glu Leu Ser Met Met Val Ser
145 150 155 160

Ser Ile Arg Thr Met Pro Asn Phe Pro Val Asn Leu Thr Asp Lys Ile
165 170 175

Phe Trp Phe Thr Ser Ser Val Thr Cys Arg Ser Ala Leu Gly Lys Ile
180 185 190

Cys Arg Asp Gln Asp Lys Leu Ile Ile Phe Met Arg Glu Ile Ile Ser
195 200 205

Leu Thr Gly Gly Phe Ser Ile Ala Asp Phe Phe Pro Thr Trp Lys Met
210 215 220

Leu His Asp Val Gly Gly Ser Lys Thr Arg Leu Leu Lys Ala His Arg
225 230 235 240

Lys Ile Asp Glu Ile Leu Glu His Val Val Asn Glu His Lys Gln Asn
245 250 255

Arg Ala Asp Gly Gln Lys Gly Asn Gly Glu Phe Gly Gly Glu Asp Leu
260 265 270

Ile Asp Val Leu Leu Arg Val Arg Glu Ser Gly Glu Val Gln Ile Ser
275 280 285

Ile Thr Asp Asp Asn Ile Lys Ser Ile Leu Val Asp Met Phe Ser Ala
290 295 300

Gly Ser Glu Thr Ser Ser Thr Thr Ile Ile Trp Ala Leu Ala Glu Met
305 310 315 320

Met Lys Lys Pro Ser Val Leu Ala Lys Ala Gln Ala Glu Val Arg Gln
325 330 335

Val Leu Lys Glu Lys Lys Gly Phe Gln Gln Ile Asp Leu Asp Glu Leu
340 345 350

Lys Tyr Leu Lys Leu Val Ile Lys Glu Thr Leu Arg Met His Pro Pro
355 360 365

Ile Pro Leu Leu Val Pro Arg Glu Cys Met Lys Asp Thr Lys Ile Asp
370 375 380

Gly Tyr Asn Ile Pro Phe Lys Thr Arg Val Ile Val Asn Ala Trp Ala
385 390 395 400

Ile Gly Arg Asp Pro Glu Ser Trp Asp Asp Pro Glu Ser Phe Ser Pro
405 410 415

Glu Arg Phe Glu Asn Ser Ser Val Asp Phe Leu Gly Ser His His Gln
420 425 430

Phe Ile Pro Phe Gly Ala Gly Arg Arg Ile Cys Pro Gly Met Leu Phe
435 440 445

Gly Leu Ala Asn Val Gly Gln Pro Leu Ala Gln Leu Leu Tyr His Phe
450 455 460

Asp Arg Lys Leu Pro Asn Gly Gln Ser His Glu Asn Leu Asp Met Thr
465 470 475 480

Glu Ser Pro Gly Ile Ser Ala Thr Arg Lys Asp Asp Leu Val Leu Ile
485 490 495

Ala Thr Pro Tyr Asp Pro
500

<210> 4
<211> 51
<212> DNA
<213> synthetic construct

<400> 4
tcaaggagaa aaaaccccg g atccatggag cagaaaaatc tctctttcc g 51

<210> 5
<211> 35
<212> DNA
<213> synthetic construct

<400> 5
ggccagtgaa ttgtaatacg actcactata gggcg 35

<210> 6
<211> 35
<212> DNA
<213> synthetic construct

<400> 6
gcggccgcga attcggaaaa tggagcagaa aaatc 35

<210> 7
<211> 35
<212> DNA
<213> synthetic construct

<400> 7
gcggccgcgg atccttagaa catcgtaat taaag 35